ABSTRACT

A method for analyzing data, the data characterized by a set of scalars and a set of vectors, to analyze the data into components related by statistical correlations. In preferred embodiments, the invention includes steps or devices for, receiving a set of a scalars and a set of vectors as the inputs; calculating a correlation direction vector associated with the scalar and vector inputs; calculating the inner products of the input vectors with the correlation direction vector; multiplying the inner products onto the correlation direction vector to form a set of scaled correlation direction vectors; and subtracting the scaled correlation direction vectors from the input vectors to find the projections of the input vectors orthogonal to the correlation direction vector. The outputs are the set of scalar inner products and the set of vectors orthogonal to the correlation vector. The steps or devices can be repeated in cascade to form a multi-stage analysis of the data. The invention can also be used with a steering vector preceding the adaptive analysis stages.